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Analysis of Poverty Status and Income Distribution Among Farming Households In Imo State, Nigeria

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Abstract
Incidence of poverty among Nigerians kept on growing in spite of all the laudable programmes and interventions that have been put in place by the governmental and non-governmental agencies to alleviate poverty in the country. It was against this background that this study takes the initiative of analysing poverty status and income distribution among farm households in Imo State. Hence, the study made use of questionnaire to gather data from the households. Findings revealed that the mean households' size is 7 persons which are large enough to attract high dependency burden, the mean age of the respondents is 58 years, most (91.70%) of the respondents had formal education. The result further showed Gini coefficient of 0.19, indicating a low level of inequality in income distribution which suggested homogenous population of the farm households. Theil T (26.7%) of the total inequality is contributed by the overall income while Theil L which measures the mean log deviation indicated 30% of total inequality was contributed by total income. In essence, other factors apart from income contribute more to total income inequality. Decomposing the Gini coefficient, the contribution of agriculture to total inequality was highest (3.271) while secondary economic activities contributed the least in negative effect. It is good to note that agricultural income is highly unequally distributed. Therefore, secondary economic activities which have greater potential impact on income distribution should be encouraged.
Keywords: Incidence of poverty, income distribution, income decomposition, primary income, primary occupation.

1. Introduction

The pattern of income distribution has been a concern to economist (Clarke et al, 2003). Measures of poverty focus on the situation of individuals or households who find themselves at the bottom of the income distribution, typically this requires information about the mean level of (say) income as well as its distribution (Gottschalk and Smeeding, 2000). Measuring and the understanding of the level, causes and development of income inequality have received increasing attention. Researches in the 1990's witness a significant shift from the most focused research area of economic growth and convergence in Gross Domestic Product (GDP) per capita across countries to identify factors influencing the distribution of income, and analyzing income distribution and its development over a period of time (Heshmati, 2004).

This shift in focus is specifically from the divergence of per capita to the long-term equalization or polarization of incomes across regions or countries, (Quah, 2002). This shift does not only affect the section of technological change but also raised human capacity in order to create growth and wealth. Also, as a matter of intense awareness of growing disparity, there is series of calls for analyzing different aspects of income inequality such as its measurement, decomposition and factors influencing income inequality (Heshmati, 2004). In Nigeria, off and non-farm incomes represent an important element in the livelihood of few poor. In several areas, increasing population density and the rapid rate of natural resources depletion have made it difficult for agriculture to remain the only or even the main source of income of rural households in many areas of the country. Following this, it safely said that underdevelopment of rural non- farm sector may, in part explain the increase in the level of poverty in rural Nigeria (Awoyemi, 2004).

Income inequality can be harmful to economic growth and development of a country. In one of the macroeconomic objectives, equity in distribution of income and wealth among the citizens is a priority to the government. This act shows the importance and necessity of income inequality or decomposition. According to Addison and Cornia (2001) in their study, they prove an existing relationship between income inequality and poverty. Therefore, a careful study of decomposition of income distribution among farm households gives insight into the incidence of poverty and its reduction. OECD (2014) showed that economic crisis has widened

the gap between the rich and poor largely on the fact that economic growth has not been fairly shared. The OECD examines the trends and patterns in inequality and poverty for OECD and emerging countries. The work examines the different causes linked to growing inequalities, such as changes in redistribution and policy fashion, globalisation and technological change. It also assesses the effectiveness of social and labour market policies in tackling poverty and high inequalities. OECD makes use of dedicated statistical database to benchmark and monitor income inequality and poverty across countries. This database is usually updated from time to time as a matter of the importance and increasing debate on income inequality and poverty in policy discussion. The term income is known as disposable income of a household in a particular year. This income is in form of earnings, capital income, self-employment and public cash transfers less the income taxes and social security contributions paid by households. In measuring income inequality, five indicators are involved, which include Gini coefficient and S90/S10, among others.

The poverty rate is measured as the ratio of the population (in a given age group) that the income falls below the poverty line; taken as half the median household income of the total population (The Stanford Center for Poverty and Inequality, 2014). In 2007, the official poverty rate was about 12.5 percent and this has increase to about 15.0 percent in 2012. Child poverty rate witness an upsurge from 18.0 percent in 2007 to about 21.8 percent in 2012. In ranking, this current poverty rates for the entire population and for the children was among the poorest over the period of 13 years (i.e., both are ranked 11th). Nigeria Economic Report, documented by the World Bank shows that poverty in the country has been reduce contrary to the 2010 estimate of the National bureau of statistics, which shows that the proportion of people living in extreme poverty increases from 51.6% in 2004 to about 62% in 2010. This comprehensive national household survey was argued to have underestimated the consumption level of the people. In more recent household survey conducted by the NBS in 2010/2011 and 2012/2013, the world bank posited that poverty in Nigeria has lowered to 33.1% in 2012/2013 from 35.2% in 2010/2011, compared with 61.2% calculated using the questionable survey. This new poverty estimates are lower than the average for Sub-Saharan Africa.

About half of the wealth in the world is owned by few among the population, specifically just about one per cent. In the countries where economic inequality has been on the increase in the last 30 years is where we found out several people lives. The World Economic Forum has recognized economic inequality as one of the most important risk to human progress which impacts social stability within countries and poses threat on security in a global scale (Fuentes-Nieva, 2014). The accumulation and control of economic resources by small population escalate the problem in political and economic system and even add to other form of inequalities especially the one between men and women.

In the study of Ogbeide and Agu (2015), the cordial existence of an economy like Nigeria is under a threat due to prevalence of poverty and issues surrounding inequality. These issues have continually received attention of researcher and policy makers in different economies of the world. However, literatures have made clear the existing gap between poverty and inequality and the causal relationship between them. Is there any causal relationship, if there is, then the direction of causality is yet to be identify especially as it pertains to Nigerian economy. In their study which seeks to establish whether or not there is a causal relationship between poverty and inequality in Nigeria, it was established in it that there is an unswerving line of causality between poverty and inequality and also an indirect channels through unemployment and low life expectancy on inequality which worsen poverty in the country.

The specific objectives of the study are to: determine key socio - economic and demographic determinants of the earning capacity and livelihood diversity of the farm households, determine the level of income inequality in the rural and urban areas and the contribution of each income source to overall inequality, quantify the share of different income sources in total household income and examine their equity implication, determine the effects of income on levels and distribution of poverty status and the influence of socio economic characteristics of households on the level of inequality.

2 Methodology

This study was carried out in Imo State Nigeria. Imo State is located in the Southeast Zone of Nigeria and lies between longitude 6^0 35^I and E latitude 7^0 28^I E (Ministry of lands Survey and Urban planning Owerri, 1992). Imo ADP is structured into three Agricultural Zones namely: Okigwe, Orlu and Owerri respectively with twenty seven (27) Local Government Areas. Also 38 blocks 326 circles and 2,496 sub circles across state. Primary data was collected from selected farming households through the administration of structured questionnaire.

Multi-stage random sampling technique was adopted in selecting the respondents for the study. The first stage involves purposive selection of Owerri Agricultural Development Zone because of the existence of arable crop farming among the smallholder farmers in the area. Six out of the eleven LGAs (Local Government Areas) were randomly selected in the second stage of the selection. The third stage involved random selection of two communities from each of the chosen six LGAs making a total of twelve villages. Finally, a proportionate sampling of about 1.23% of smallholder farmers was drawn from each village making a total of one hundred and fifty-two (152) respondents for the study. These farmers were selected from the list of households who were into smallholder arable crop production provided by the Agricultural Development Programme (ADP).

Income earned both in cash and in kind is recognized and used in the study. So therefore household consumption of crops and livestock produced are given monetary value based on prevailing market prices. There is an increasing need to focus on expenditure rather than income as an indicator of poverty status in poverty studies in Nigeria. This is because; measuring consumption expenditure, especially in rural households whose incomes came largely from self-employment in Agriculture. (Aigbokhan, 2000, Awoyemi, 2004). Moreover, given that annual income is required for a satisfactory measure of living standards, as income-based measure requires multiple visits or the use of recall data, whereas as consumption expenditure measure can rely on expenditure over the previous few weeks (Deaton, 1997). In view of the foregoing, an attempt was made to collect data on both household income and expenditure.

2.1 Analytical techniques

Descriptive statistics were employed to illustrate the socio economic characteristics, demographic patterns of the farm households and to show the importance of both non-farm employment and broad pattern of participation in non- farm opportunities across different groups of the population. Other analytical techniques used included FGT poverty indices, coefficient of variation and Gini coefficients of income inequality.

2.2 Income Inequality Measures.

The most widely used single measure of inequality is the Gini Coefficient which is based on Lorenz curve, a cumulative frequency that compares that distribution of a specific variable (e.g. income) with the uniform distribution that represents equality. To construct the Gini Coefficient, cumulative percentage of expenditure (or income on the vertical axis. The Gini Coefficient was measured following Morduch and Sicular (2002), where incomes are ordered so that $Y_1 \leq Y_2 \leq \ldots \leq Y_n$ Gini coefficient was computed as;

$$Lgin(y) = 2\sum_{i=1}^{n} i\left[-\frac{n+1}{2}\right]y_i \Big/ \overline{n^2\mu}$$

Where n is the number of observation, μ is the mean of the distribution, is the income of the ith household. This measure of income inequality conforms to the Pigou- Dalton transfer principle, principle of population, income scale independence and anonymity or symmetry but in the area of decomposability axiom, it fails especially if the sub- vectors of income overlap. However, several authors and researchers have recorded the success of decomposition of Gini Coefficient.

(b) Generalised entropy measures of inequality agreed with all the six criteria that make a good measure of income inequality. Theil indexes which are the family of generalized entropy inequality measures were used and the general formula was computed as:-

$$GE(\alpha) = \frac{1}{\alpha(\alpha-1)}\left[\frac{1}{N}\sum_{i=1}^{n}\left(\frac{y_i}{Y}\right)^{\propto} - 1\right]$$

Where y is the mean income, the values of GE measures vary between 0 and ∞, with zero representing an equal distribution and higher value representing a higher level of inequality. The parameter a in the GE class represents the weight given to distances between incomes at different parts of the income distribution and can take any real value. Theil's T index GE(1) was computed as $GE(1) = \frac{1}{N}\sum_{i=1}^{n}\left(\frac{y_i}{Y}\right) In\left(\frac{y_i}{Y}\right)$ while Theils L index GE(0) was the mean log deviation computed as $GE(0) = \frac{1}{N}\sum_{i=1}^{n}\left(\frac{y}{Y}\right)$

c. Decile dispersion ratio:- a simple and widely used measure of inequality which presents the ratio of the average consumption of income of the richest 10 percent of the population divided by the average consumption of income of the bottom 10 percent was used.

2.3 The Decomposition of Income Inequality by Sources of Income

(a) Coefficient of Variation

Following Shorrocks (1982b) and Oyekale *et al.*, (2004) suppose total income(Y) consists of income from K sources. The variances of each of the sources of income σ^2_i and the covariances between sources of income σ^2_{ij} can be expressed as equal to variance of total income. $\sigma^2 = \Sigma\sigma_I + \Sigma\sigma_{ij.}$ The contribution of the *ith* source of income to household's total income variance comprises of j*th* income variance and part of the covariances allocated to the ith source of income. This can be expressed as: $\sigma^2 = \Sigma\sigma_{iy}$

Furthermore, the decomposition corresponding to the coefficient of variation can be further expressed as:

$$\sum w_i c_i = 1$$

$$w_i = {}^{\mu_i}/_{\mu}$$

$$c_i = \rho \; {}^{\sigma_i}/_{\mu_1} \Big/ {}_{\sigma}/_{\mu}$$

where: $w_s c_i$= factor inequality weight of the *ith* source in overall inequality.

μ_i= mean of income from *ith* source. μ = mean of total income from all sources. c_i = relative concentration of the *ith* source in overall inequality. $\rho =$ correlation coefficient between the *ith* source and total income

2.4 Decomposition Based on Gini Coefficient

Following Pyatt *et al.,* (1980), the Gini -Coefficient can be decomposed as follows:

$$G = \frac{2Cov(Y,r)}{n\mu}$$

Where *n* is the number of observations, *Y* is the series of total income and *r* is the series of corresponding ranks. The Gini Coefficient of the *ith* source of income - can be expressed as

$$G_i = \frac{2Cov(Y_i,r_i)}{n\mu_i}$$

Where Y_i and r_i refer to the series of income from the *ith* source and corresponding ranks respectively. Since total income is the addition of all source incomes, the covariance between the total income and its rank can be written as the aggregate of covariances between each source income and rank of total income. The total income Gini can then be expressed as a function of the source Ginis.

$$G_i = \sum \frac{\mu_i}{\mu} = R_1 G_1$$

Where- is the correlation ratio expressed as :$R_1 = Cov \; \frac{(Y,r)}{(Y_1,r)}$

Where cov*(Y,r)* is the covariance of total income and corresponding rank respectively and cov (Y. r_i) the covariance of income and corresponding tank. The decomposition of Gini Coefficient can be further expressed as:$\sum w_1 g_1 = 1$

$$w_i = {}^{\mu_i}/_{\mu}$$

$$g_i = R_i \; {}^{\sigma_i}/_{\mu_1} \Big/ {}_{G}$$

Where *w, gi* is the factor income inequality weight of the *ith* source in overall income inequality, w_i is the source income weight and *g.* is the relative concentration coefficient of the *ith* source increases overall income inequality when g_i is greater than one and it decreases overall income when g_i is less than one.

2.5 Income Function.

Suppose an income equation is defined as:

$Y = X\beta + \varepsilon$

Where Y is the per capita income in Naira and *X* is an *n* x *m* matrix of independent variables with the first column given by the *n* vector e_i= (1,1,—1). More specifically, the following variable specifications were proposed.

X_1= Age of respondents in years, X_2 = Sex of household, X_3 = Number of persons in the household, X_4 = Marital status of house head, X_5 = Years of education of household head in years, X_6 = Total number of hours of household worked per week in hours, X_7 = Wage employment dummy (1 for wage employment, 0 otherwise), X_8 = Farm activities dummy (1 for farmers, 0 otherwise), X_9 = Nonfarm activities (0 for farm activities, 1 otherwise), X_{10} = Location dummy (urban 1, 0 otherwise), X_{11} = Distance to the nearest city (km), X_{12} = Distance to the nearest market (km), X_{13} = Amount of credit obtained in naira, X_{14} = Secondary occupation dummy (1 for

yes,0 for no), β is an M-vector of regression coefficients, and $\sum is$ an vector of residuals. The *M* coefficients can be estimated using appropriate econometric techniques with specification corrections as required. Predictions of per capita income Y = X β are formed using information from the entire data set. However a major limitation is that the influence of a variable that is constant for all the observations cannot be estimated.

2.6 Incidence of poverty by major occupations.

In an attempt to answer the question of whether the movement to nonfarm occupation is reducing or not, the link between occupation and poverty will be examined first. At another stage of analysis, the results will be drawn to show how and to what extent participation in secondary economic activities contributed to rural poor's income. The standard Foster - Greer - Thorbecke (FGT) (1984) poverty indices would be estimated for each of the major income - source categories. Here attention is given primarily to the comparison of poverty across various income- source categories over for the study period rather than over time.

The FGT can be expressed as

$$p \propto = \frac{1}{n}\sum_{i=n}^{\infty}\left(\frac{Z - y_i}{Z}\right)^{\infty}$$

Where n is the total population (households), q is the number of households with income below the poverty line; z is the poorest household and $\propto$ *is a* poverty aversion parameter to be chosen in line with a society's sensitivity to deprivation and where $\propto$ = 0, 1 and 2. In this study, the absolute poverty line was adopted. Here, the poverty line was defined as one half of the median income. After all, all poverty lines retain an element of arbitrariness. (Lanjouw, 2000, Awoyemi, 2004).

3. Results and Discussions

The size of household could provide important information on the income decomposition and poverty level. According to Awoyemi, (2004), evidence abound pointing to the fact that poor people tend to live in small size households while non poor tends to live in large size households. This in turn could be explained in terms of dependency burden and of number of mouths to feed, which are often associated with household size. The modal household size group is 4-7 persons, large enough to attract high dependency burden, the more a household gravitates towards poverty status and vice- versa. The age of farmer is an important factor influencing the level of output especially in the peasant economy, which is characterized by high labour requirement. Respondents whose age fell within 41 and 65years made up the bulk of the practicing farmers in the study area. They constituted 56.7% of the respondents. Those whose age fell between 41 and 50 were in modal age range of 34.2% followed by 51-65 years having 32.5%. This was quite understandable if one recollects that most people become rightful owners of farmland when their parents have died or transferred the land to them as a result of incapability to manage them due to old age. The uneven distribution had 24.2% of respondents with age bracket 15-40 years.

It is a widely accepted fact that the gender relations largely determine household security, well-being of members, livelihood diversification and poverty level. For instance, for a long time, women in Africa have been placed under stress by the gap between their income responsibilities and their access to resources. This in turn is believed to have fee to the feminization of poverty. The study seeks to investigate how gender based differences in access to resources influence how different members of households participate in secondary economic activities. It was found out that majority of farm household heads were male representing 82.5% of the total population, 16.7% were married, 3.3% were divorcee while the singles and widowed were both 5%. The benefits derivable from group action suggest that when man and woman work together, they stand a better chance of success than when each works as an individual. The underlying economics of it ensures spreading of risks among embers, pool of sources and other factors, which could bring about positive synergistic effects on the level of production and earning capacity. The Table also showed that 18.3% of the respondents had no formal education, 25.85% had only primary education, 30.0 % had secondary education only while 25.85% of the respondents had tertiary education.

Table 1: Socioeconomic characteristics of the respondents

Household's size	Frequency	Percentage
1- 3	9	7.50
4-7	60	50
8 - 1 0	34	28.33
11- 14	10	8.33
Above 15	7	5.83
Mean = 7		
Age (Years)		
15-30	2	1.7
31-40	27	22.5
41 – 50	41	34.2
51 -65	39	32.5
Above 65	11	9.2
Mean = 58		
Marital status		
Married	104	86.7
Single	6	5.0
Divorced	4	3.3
Widowed	6	5.0
Educational Background		
No formal Education	22	18.30
Primary School only	31	25.85
Secondary school only	36	25.85
Tertiary Institution	31	25.85

Source: Field Survey, 2015

3.1 Inequality Measures

The Gini Coefficient for overall income of household heads in Imo State is computed as 0.19. This shows a low level of inequality in income distribution, which suggests that homogenous population, dominates the farm households. The results of the Generalized Enthropy measures as in Table 2 show that when higher weight is given to distances between income distributions. It takes value of 0.3001 with weight of 2. This 30% corroborated the results of Gini - Coefficient of homogeneity in the farm household population.

Using Theils T, 26.7% of total inequality is contributed by the overall income while in Theils L which measure the mean log deviation, 30.0% of total inequality was contributed by the total income. In essence, other factors apart from income contribute more to total income inequality. Also, the Decile Dispersion Ratio of income of the rich to the poor is 41.81%. This shows that the income gap between rich and poor has not widened in farm household despite the low returns to agricultural production and income generally.

Table 2 Inequality Measures

Variables	Value	Percentage
I Gini (Total Income)	0.1895	18.95
Generalized Enthropy ($\propto$ =0)	∞	∞
$\propto$= 1	∞	∞
$\propto$= 2	0.3001	30.01
GE(I)Theils	0.267	26.70
'GE(O) Theils L	0.300	30.00
Decile Dispersion Ratio	41.81	41.81

Source: Field Survey, 2015

3.2 Income function of respondents

This involves the use of regression - based methods of distribution by income source. The lead equation was selected based on magnitude of the coefficients of multiple determination, the significance /contribution of the explanatory variables to the distributional changes as adjudged by the F-value, the significance of the t-value and

appropriateness of the signs and value of the regression coefficients in line with a-priori expectation. Based on the above-mentioned criteria applied in the regression analysis of income changes due to changes in the variables, the exponential functional form was chosen as the lead equation. The functions are expressed in Table 4 below. The result shows that seven coefficients of the explanatory variables are significant and that any change in any of the variables results in change in income. Positive effect is established by age of respondents, sex, years of education, farming activities and credit availability while non-farming activities and location of the farm are observed to have negative effect. It is evident from the income function results that there seems to be low productivity of labor in economic activities among the respondents. Labor variable shows negative association with level of income decomposition. The effect of age on income function shows that as one gets older, there is a tendency to rationalize income among needs and wants. The result shows that distribution is more egalitarian among male household heads than female. Other variable that shows positive effect on income function are number of persons in the household, marital status of respondents, farming activities, location of the farm and distance to market have negative effect on income distribution.

3.3 Income inequality by income source

The issue of income inequality is further discussed because the link between income inequality and poverty has been the focus of discussion on poverty. (Awoyemi, 2004). This is widely believed that reducing income inequality could benefit the poor both immediately and in the long run by facilitating economic growth. (Kimalu *et al.,* 2001) To this end, an attempt is made to decompose coefficient of variation and the Gini coefficient to identify the two ways in which income sources contribute to overall income inequality. First, it can be asked whether an income source serves to increase or decrease overall income inequality? Secondly, is it possible to identify how much of the overall inequality is due to any particular income source? Table 4 reports the results of the decomposition to identify income-inequality decreasing sources of income. An income source increases overall inequality when Gini coefficient is greater than one i.e. the higher the values of these estimates for a source, the higher will be its contribution 10 total income inequality. As expected, the contribution of agriculture to total inequality to the highest (3.271) while secondary economic activities contributed the least in negative effect. It is good to note that agricultural income is highly unequally distributed, further, it is identified that secondary economic activities is inequality decreasing.

Table 3: Summary statistics of key variables used in the study.

Variables	Number	Units	Mean	Std. Dev.
Sex	120	Male		
		Female		
Distance to the City.	120	Km	6.475	6.836
Distance to the Market.	120	Km	3.250	2.524
Education.	120	Years	4.075	2.524
Estimated Total Income earned from Enterprises per annum.	120	Naira	314978.5	245044.55
Additional Income Received from Secondary Economic Activities both in cash and Kind Per Annum.	120	Naira	87085.83	96636.81
Female average Wage rate per day	21	Naira	623.14	619.67
Male average Wage rate per day.	99	Naira	100.85	928.88
Hours spent on Primary occupation per week.	120	Hours	38.95	13.69
Income from Primary occupation.	120	Naira	220502.66	194259.84
Hours spent on Secondary Occupation per week.	11	Hours	21.81	15.61.

Table 4: Income Functions of Respondents.

Independent variable s	**Linear Coefficients**	**Std.Err**	**t-stat**	**Prob.**	**Exponential Coefficients**	**Std.Err**	**t-stat**	**Prob.**
Age	7831.953	19419.23	0.40	0.69	0.019700	0.007922	2.48	0.01**
Sex	97755.65	57377.63	1.70	0.09*	0.473212	0.186691	2.53	0.01**
Household Size	7302.228	5217.962	1.39	0.16	0.014742	0.016976	0.86	0.38
Marital Status	-74833.76	99292.50	-0.75	0.45	0.282444	0.311403	0.91	0.37
Educational Level	8063.397	5827.52	1.38	0.17	0.042017	0.018852	2.23	0.02**
Labor hours	650.8707	1113.607	0.58	0.56	-0.000484	0.003615	-0.13	0.89
Wage labor	-57058.20	56870.95	-1.00	0.32	-0.300522	0.185267	-1.62	0.11
Farming	70751.69	56492.52	1.25	0.21	0.365314	0.183932	1.98	0.04**
Non-farm	-137434.6	66212.28	-2.07	0.04**	-0.361419	0.215707	-1.68	0.09*
Location	-165353.5	61415.31	-2.69	0.01***	-0.603526	0.200079	-3.02	0.00***
Dist. to city.	-611.7252	5288.599	-0.12	0.91	0.007347	0.017224	0.43	0.67
Dist. To Mkt.	10284.70	11156.16	0.92	0.36	-0.023489	0.036178	-0.65	0.52
Credit Obtained	1.218532	0.413931	2.94	0.00***	0.0000035	0.0000013	2.62	0.01**
Constant	43388.40	441626.6	0.09	0.92	11.32017	0.5058	22.41	0.00***
R^2	0.35667	0.38						
Adjusted R^2	0.270889	0.30						
S.E. of Regression	209238.6	0.68						
F-Stat.	4.158033	4.95						
Prob. (F- Stat)	0.000010	0.000001						

Source: Field Survey, 2015

The coefficient of variation shows how focus is on the inequality of different income sources namely agricultural activities (primary occupation) and non- agricultural activities (secondary occupation). It was found that agricultural income represented the most important inequality-increasing source of income while non-agricultural income has greater inequality decreasing potential. Table 5 set out this decomposition and shows that while agricultural income only represents 70.01% of total income in Imo State, it accounted for about 40% of the inequality.

Table 5 Decomposition of Gini coefficient.

Income Source	Gini Decomposition Coefficient
Primary income	3.271
Secondary income	-2401.58
Total Income	1.428

Source: Field Survey, 2015

It is clear from these tables that there is a high level of income inequality contribution from the agricultural sector in Imo State, which in turn could be indicative of what is expected in other states of the country. In line with the thinking of Persson and Tabellini (1994) that hypothesized that higher income inequality would lead to more redistributive public policy in democracies because the median voter increasingly prefers redistributionist public policies as inequality increased. It is expected that equity oriented policies by the present democratic government m the country stand a better chance of wide acceptance by populace.

Table 6 Percentage contribution of income source to overall income inequality.

Income Source	Share in Total Income	Percentage Share	Coefficient of Variation Index	Percentage Contribution
Primary	0.7001	70.01	0.288	39.94
Secondary	0.2999	29.99	0.036	13.18
Overall	1	100	0.721	

Source: Field Survey, 2015

3.4 Poverty and farming household activities

Table 7 presents the results of the Foster-Greer Thorbecke (FGT) measures of poverty. These measures quantify the three well-known dimensions of poverty, namely the level, the depth and the severity (also known, respectively as incidence, inequality and intensity) of poverty. The headcount ratio (P_0) is the most popular FGT measure. It is the ratio of the number of poor individuals to the total population. The results reveal that livelihood solely on primary occupation and 65% of those who are engaged in secondary economic activities were living in absolute poverty as defined by the poverty line for rural Imo State of Nigeria.

Considering the depth of poverty (poverty gap, P_i) that measures the shortfall of the average income of the poor relative to the poverty line, it is evident from Table 7 that, it will require more expenditure to raise the poor who earn their income mainly from secondary occupation above the poverty line than it will require to raise those poor who earn their income mainly from the primary occupation above the line. The measure that takes into account not only the distance separating the poor from poverty line (the poverty gap), but also the inequality among the poor is

also considered. It is the poverty severity index (squared poverty gap, P_2). Estimated values of P_2 showed a general decline in the severity of poverty from 0.24 through 0.27 to 0.32 for overall income, primary occupation and secondary occupation. The results suggest that primary occupation have great potential to mitigate poverty among rural poor and could have an income equalizing effect.

Table 7 Foster-Greer Thorbecke Poverty Measures.

Income Sources	FGT(0)	FGT(l)	FGT(2)
Total Income	0.7167	0.363	0.237
Primary Occupation	0.725	0.396	0.268
Secondary occupation	0.650	0.412	0.322

Source: Field Survey, 2015

4. Conclusion

The analysis has shown that Imo state is in acute poverty status and needs to be urgently addressed before it becomes politically volatile. The study shows that poverty should not be viewed from income/consumption/expenditure alone but should be addressed from people's perspective as poverty is multidimensional and should be measured in many dimensions. Also, from the respondents' point of view, the preceding analysis has demonstrated that secondary occupation in complementary with agricultural activities in Imo State, Nigeria is important in terms of both employment rates as well as incomes. Roughly, three quarters of the economically active population in Imo State, Nigeria is employed in the secondary economic activities. The range of activities in which the rural population engaged extends from trading to services. A considerable number of secondary activities are connected to agriculture, in that they fit into agricultural goods or they supply goods and services for agricultural households.

Encouragement of secondary economic activities which has greater potential to impact on income distribution in that they are inequality decreasing should be practiced. An important challenge is to increase access of the poor to secondary activities that yield high incomes. Creating enabling environment for vigorous growth as well as investing in education and improvement in the asset endowments of the poor will alleviate poverty in the study area.

References

Addison, T. & Cornia, G.A (2001), "Income Distribution Policies for Faster Poverty Reduction". WIDER Discussion paper No. 2001/93, World Institute for Development Economic Research.
Aigbokhan, B.E. (2000), "Poverty, Growth and Inequality in Nigeria: A case study": AERC Research Paper 102 African Economic Research Consortium, Nairobi.

Awoyemi, T.T (2004). "Rural Households Diversification into Secondary Economic Activities: Options for Poverty Alleviation in Oyo State, Nigeria", Issues in African Rural Development, Monograph Series, No 35.
Berdeque, J.A. (2000), "La probeza rural en americalatina", in R. Hertford, R Esheverri, and E. R. Moscardi (Eds), El papelestrategico del sector rural en eldesarrollo de America Latina, San Jose, Costa Rica: EGA
Canagarajah, S.J., Ngwafon, R. & Thomas, S. (1997), "The evolution of poverty and welfare in Nigeria, 1985-92". Policy Research Working Paper No 1715 (January).Pp 31
Clarke, G., Colin, L., & Zou, X.H. (2003), "Finance and Income Inequality: Test of Alternative Theories". World Bank Policy Research Working Paper 2984, Washington D.C., World Bank. Pp 8-9
Cowell, F.A. (2000), "Measurement of inequality", in Atkinson A.B and Bourguignon F. (Eds), Handbook of Income Distribution, Vol. 1, North Holland, chapter2, 87-166.
Datt, G. & Ravallion, M. (1992), "Growth and redistribution components of changes in poverty measures: A decomposition with applications to Brazil and India in the 1980", Journal of Development Economics 38, 275-295.
Deaton, A. (1997), "The analysis of household survey, Microeconomic Approach to Development Policy, Baltimore," John Hopkins University press, for the World Bank.
Federal Office of Statistics, Abuja, Nigeria (1999), "Poverty and agricultural sector in Nigeria" Poverty Incidence of Farmers by Region Federal.
Fields, G.S. (2000), "Measuring Inequality Change in an Economy with Income Growth, The International Library of Critical Writings in Economics": Income Distribution,(Edward Elgar).
Foster J. Greer H & Thorbecke E. (1984), "A class of decomposable poverty measures" Econometrica 52 No. 3, Pp761-766.
Fuentes-Nieva R.(2014), "Head of Research, Oxfam GB, Nicholas Galasso", Research and Policy Advisor, Oxfam America pp2
Geweke, J. & Keane, M. (200D), "An empirical analysis of earnings dynamics among men in the PSID: 1968-1989", *Journal of Econometrics* 96,293-356.
Gottschalk, P. & Smeeding, T.M. (2000), "Empirical evidence on income inequality in industrialized Countries", in Atkinson A.B. and Bourguignon F. (eds), Handbook of Income Distribution, Volume 1, North Holland, Chapter 5, pp.261-308.
Heshmati, A. (2004).," Inequalities and their measurement", Unpublished Manuscript. Institute for the Study of Labor, Bonn, Germany.
Ipinnaiye, A. O. (2001), "A Decomposition Analysis of the sources of income inequality in Ibadan metropolis", Unpublished B. Sc. Project, Department of Agricultural Economics, University of Ibadan, Ibadan.
Jian L.R. & Tendulkar L.(1990), "Role of growth distribution in the observed change of headcount ratio-measure of poverty: a decomposition exercise for India", Technical report no 9004 (Indian Statistical Institute, Delhi).
Kimalu, P. Nafula N. Manda D.K. & Kimenyi, M.S. (2001), "A situational analysis of poverty in Kenya", KIPPRA Working Paper No. 6.
Kuznets, S. (1955), "Economic growth and income inequality". American Economic Review 45 (March) 1 - 28.
Lanjouw, P. (2001), "Non-farm employment and poverty in El Salvador", World Development 29(3), 529-547.
Milanovic, B. (1998), "Income, inequality and poverty during the transition from planned economy to market economy": World Bank Regional and Sectoral Studies. Washington DC. World bank.
Morduch, J. & Sicular, T (2002), "Rethinking inequality decomposition, with evidence from rural China", Economic Journal 112(476), 93-106.
Moffit, R. A & Gottschalk, P (2002), "Trends in the transitory variance of earning s in the United States", *The Economic Journal* 112, March C68-C73.
Ogbeide, E.N.O. & Agu D.O. (2015), "Poverty and income inequality in Nigeria: Any causality".Asian Economic and Financial Review, 5(3):439-452
Oyekale, A.S., Adeoti, A. I., & Ogunnupe. T.O. (2004), "Sources of income inequality and poverty in rural and urban Nigeria", A proposal presented at the 3rd Pep General Meeting, Dakar (Senegal), 10th-20th June, 2004.

Oxford Atlass (1996), "Map of Osun State of Nigeria", Oxford University Press.
Persson, T. & Tabellini, G (1994), "Is inequality harmful for growth"? American Economic Review 84 (3): 600-621.
Pyatt, G. (1976), "On the interpretation and disaggregation of Gini coefficient", *Economic Journal* 86(342), 243-255.
Quah, D. (2002), "One third of the world's growth and inequality, Economics Department", CEPR Discussion Paper 2002:3316.
Subramaniam, S. (ed), (1997), "Measurement of inequality and poverty", Readers in Economics, Oxford University Press.
Shorrocks, A.F. (1980), "The class of additively decomposable inequality", Econometrica 48(3), 613-625.
Shorrocks, A.F. (1984), "Inequality decomposition by population subgroups", Econometrica 52(6), 1369-1385.
Shorrocks, A. & Kolenikov S. (2001), "Poverty trends in Russia during the transition Unpublished manuscript
Van de gaer D. Funnel, N. & McCarthy, T (1999), "Statistical inference for two measures of inequality when incomes are correlated", Economics Letters 64, 295-300.
World Bank, (1996), "Profile of Poverty". In Poverty and Welfare in Nigeria. Washington D.C.
World Bank, (1999), "Inequality Measurement and Decomposition", World Bank, PovertyNet. Washington D.C.
Zandvakili, S. (2002), "Trends in earnings inequality among young adults". Review of Social Economy 60(1), 93-107.